

**IN THE UNITED STATES DISTRICT COURT FOR THE  
WESTERN DISTRICT OF OKLAHOMA**

AMANDA ALEXANDER, et al.,	)	
	)	
Plaintiffs,	)	
	)	
vs.	)	Case No. CIV-11-1343-M
	)	
HALLIBURTON ENERGY SERVICES,	)	
INC., et al.,	)	
	)	
Defendants.	)	

MITCHELL MCCORMICK, et al.,	)	
	)	
Plaintiffs,	)	
	)	
vs.	)	Case No. CIV-11-1272-M
	)	
HALLIBURTON ENERGY SERVICES,	)	
INC.,	)	
	)	
Defendant.	)	

BRUCE WILMES, et al.,	)	
	)	
Plaintiffs,	)	
	)	
vs.	)	Case No. CIV-11-1323-M
	)	
HALLIBURTON ENERGY SERVICES,	)	
INC.,	)	
	)	
Defendant.	)	

STEPHEN G. JONES and	)	
CYNTHIA L. JONES,	)	
	)	
Plaintiffs,	)	
	)	
vs.	)	Case No. CIV-11-1322-M
	)	
HALLIBURTON ENERGY SERVICES,	)	
INC., a Delaware corporation,	)	
	)	
Defendant.	)	

### **ORDER**

Before the Court are plaintiffs Stephen G. Jones and Cynthia L. Jones’ Daubert Motion to Exclude or Limit Testimony from Defendant’s Hydrologist, Steven Larson, and the McCormick plaintiffs’ Motion in Limine to Proclude Expert Testimony of Defendant’s Witness, Stephen Larson,<sup>1</sup> both filed April 24, 2015. On May 29, 2015, defendant Halliburton Energy Services, Inc. (“Halliburton”) filed its responses, and on June 4, 2015, the McCormick and Alexander plaintiffs filed their reply. Based upon the parties’ submissions, the Court makes its determination.

#### **I. Introduction**

From the mid-1960s until 1991, Halliburton cleaned missile motor casings for the United States Department of Defense and its contractors on a portion of its Osage Road facility near Duncan, Oklahoma (“Site”). Plaintiffs allege that, as a result of those operations, the groundwater at the Site became contaminated with perchlorate, which has since migrated offsite and into the private water wells of numerous area residents. In support of their claims, the McCormick, Alexander, and Wilmes’ plaintiffs have designated Dr. Richard Laton as an expert in the field of

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<sup>1</sup>The Alexander and Wilmes plaintiffs join in the McCormick plaintiffs’ motion in limine. Additionally, the Jones plaintiffs adopt Proposition IV of the McCormick plaintiffs’ motion in limine.

geology, hydrology, hydrogeology, environmental contamination, waste management, and contaminated site investigations, and the Jones plaintiffs have retained Dr. Robert C. Knox, a hydrologist, to opine as to the impacts of the perchlorate. Halliburton retained Steven Larson, a hydrologist, who has offered a critique of the methodology and conclusions reached by both Dr. Laton and Dr. Knox in relation to their projections of the current and future scope of perchlorate contamination around the Site.

Pursuant to Federal Rule of Evidence 702 and *Daubert v. Merrill Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993), plaintiffs move to exclude certain opinions of Mr. Larson. Specifically, the Jones plaintiffs seek to exclude Mr. Larson's opinions and analysis asserting a particular level for the background concentration of perchlorate and Mr. Larson's opinions regarding remedial actions Halliburton may, or may not, undertake in the future. The McCormick plaintiffs seek to exclude the following opinions of Mr. Larson: (1) any opinions concerning the flow direction and velocity of contaminated groundwater, including his criticisms of Dr. Laton's analysis of ground water flow direction and velocity; (2) any opinions concerning the current or future ground water contamination at concentration levels less than 15 parts per billion ("ppb") and any criticism of Dr. Laton's analysis thereof; (3) any opinions of background levels of perchlorate; and (4) any opinions concerning the reliability of the 1988 Halliburton lab report concerning the concentration of perchlorate in an offsite private well ("the Shipman sample").

## II. Discussion

Federal Rule of Evidence 702 governs the admissibility of expert testimony based upon scientific, technical, or other specialized knowledge. It provides:

A witness who is qualified as an expert by knowledge, skill, experience, training, or education may testify in the form of an opinion or otherwise if:

(a) the expert's scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue;

(b) the testimony is based on sufficient facts or data;

(c) the testimony is the product of reliable principles and methods; and

(d) the expert has reliably applied the principles and methods to the facts of the case.

Fed. R. Evid. 702.

In undertaking its gatekeeping function, a court must first determine under Rule 702 whether the witness is qualified and whether the opinions expressed fall within his area of expertise. *See Graves v. Mazda Motor Corp.*, 675 F. Supp. 2d 1082, 1092-93 (W.D. Okla. 2009). “[T]he issue with regard to expert testimony is not the qualifications of a witness in the abstract, but whether those qualifications provide a foundation for a witness to answer a specific question.” *Id.* (quoting *Berry v. City of Detroit*, 25 F.3d 1342, 1351 (6th Cir. 1994)).

If the court determines the witness is qualified, it must then determine whether the expert's opinions are reliable. In *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993), the Supreme Court held that Rule 702 requires the trial court to “ensure that any and all scientific testimony or evidence admitted is not only relevant, but reliable.” 509 U.S. at 589. In *Kumho Tire Co. v. Carmichael*, 526 U.S. 137, 141 (1999), the Supreme Court concluded that “*Daubert*’s general holding – setting forth the trial judge’s general ‘gatekeeping’ obligation – applies not only to testimony based on ‘scientific’ knowledge, but also to testimony based on ‘technical’ and ‘other specialized’ knowledge.” 526 U.S. at 141. With respect to the all-important reliability determination, the Supreme Court further concluded that “a trial court *may* consider one or more of

the more specific factors that *Daubert* mentioned when doing so will help determine that testimony's reliability. But, as the Court stated in *Daubert*, the test of reliability is 'flexible,' and *Daubert*'s list of specific factors neither necessarily nor exclusively applies to all experts or in every case." *Id.* (emphasis in original).

The "*Daubert* factors" that *may* be considered in assessing the reliability of proposed expert testimony are: (1) whether the theory or technique employed by the expert in formulating his expert opinion can be or has been tested; (2) whether the theory or technique has been subjected to peer review and publication; (3) whether, with respect to a particular technique, there is a high known or potential rate of error; (4) whether standards control operation of the technique; and (5) whether the theory or technique is generally accepted within the relevant professional community. *Id.* at 149-50 (quoting *Daubert*, 509 U.S. at 592-94). In *Kumho Tire*, the Court recognized that in some cases "the relevant reliability concerns may focus upon personal knowledge or experience," rather than scientific foundations. *Id.* at 150. In such cases, the trial court may focus on alternative factors that are better-suited to the specific type of expertise at issue. *Id.* at 150-52. "The objective of [the gatekeeping] requirement is to ensure the reliability and relevancy of expert testimony. It is to make certain that an expert, whether basing testimony upon professional studies or personal experience, employs in the courtroom the same level of intellectual rigor that characterizes the practice of an expert in the relevant field." *Id.* at 152. "[T]he trial judge [has] considerable leeway in deciding in a particular case how to go about determining whether particular expert testimony is reliable." *Id.*

Further, when expert testimony is challenged under *Daubert*, the burden of proof regarding admissibility rests with the party seeking to present the testimony. *Truck Ins. Exch. v. Magnetek, Inc.*, 360 F.3d 1206, 1210 (10th Cir. 2004). "The focus [of the inquiry] . . . must be solely on

principles and methodology, not on the conclusions that they generate.” *Daubert*, 509 U.S. at 595. “However, an expert’s conclusions are not immune from scrutiny: A court may conclude that there is simply too great an analytical gap between the data and the opinion proffered.” *Dodge v. Cotter Corp.*, 328 F.3d 1212, 1222 (10th Cir. 2003) (internal quotations and citation omitted). Additionally, “nothing in either *Daubert* or the Federal Rules of Evidence requires a district court to admit opinion evidence that is connected to existing data only by the *ipse dixit* of the expert.” *Gen. Elec. Co. v. Joiner*, 522 U.S. 136, 146 (1997).

The Tenth Circuit has explained the appropriate analysis as follows:

The plaintiff need not prove that the expert is undisputably correct or that the expert’s theory is ‘generally accepted’ in the scientific community. Instead, the plaintiff must show that the method employed by the expert in reaching the conclusion is scientifically sound and that the opinion is based on facts which sufficiently satisfy Rule 702’s reliability requirements.

*Truck Ins. Exch.*, 360 F.3d at 1210 (quoting *Mitchell v. Gencorp Inc.*, 165 F.3d 778, 781 (10th Cir. 1999)).

A. Opinions regarding future remedial actions

The Jones plaintiffs anticipate that Mr. Larson will seek to offer testimony as to future remedial actions Halliburton may take at the direction of the Oklahoma Department of Environmental Quality (“ODEQ”). The Jones plaintiffs assert that such testimony is speculative and is, therefore, inadmissible. Halliburton contends that remedial investigations and the implementation of remedial action plans are subjects squarely within Mr. Larson’s expertise as a certified hydrologist. Halliburton further contends that Halliburton has entered into a Consent Order with ODEQ requiring investigation and remediation at the Site and that ODEQ has now approved three interim remedial measures specifically designed to prevent future migration of perchlorate in

the area around the Site. Halliburton, thus, contends that Mr. Larson's testimony that remedial actions will be taken is not speculation and that the Jones plaintiffs have no grounds to bar that testimony.

Having carefully reviewed the parties' submissions, the Court finds that any testimony regarding remedial actions that Halliburton has already taken or is in the process of taking is not speculative. Accordingly, the Court finds Mr. Larson's opinions regarding future remedial actions should not be excluded.<sup>2</sup>

**B. Opinions concerning the flow direction and velocity of contaminated groundwater**

The McCormick plaintiffs assert that Mr. Larson's opinions concerning the flow direction and velocity of groundwater from the Site are not supported by data or a scientific rationale and reliable analysis. Specifically, the McCormick plaintiffs contend that Mr. Larson's opinions and criticisms on these subjects are flawed in two respects: (1) Mr. Larson fails to provide a detailed substantive rationale supporting the basis and reasons for his conclusions – he fails to explain “how and why” he reached his conclusions, and (2) Mr. Larson attempts to support his flow direction analysis with a flawed particle tracking methodology that is based on a proprietary model, not generally available to the scientific community, and fails to provide supporting data and inputs for this model. The McCormick plaintiffs, thus, assert that this combination makes Mr. Larson's modeling results non-reproducible and, therefore, unreliable under Rule 702 and *Daubert*.

Having carefully reviewed the parties' submissions, and particularly Mr. Larson's expert report and deposition testimony, the Court finds Mr. Larson's opinions concerning the flow direction

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<sup>2</sup>To the extent Mr. Larson seeks to offer opinions regarding any future remedial actions that have not been implemented or approved by ODEQ, the Court finds these opinions would be speculative and should be excluded.

and velocity of groundwater from the Site are based on sufficient facts and data. Additionally, the Court finds that Mr. Larson's opinions are the product of reliable principles and methods and are supported by reliable analysis. The Court, therefore, finds that Mr. Larson's opinions concerning the flow direction and velocity of groundwater from the Site are reliable. Finally, the Court finds that the majority of the objections the McCormick plaintiffs have to Mr. Larson's opinions go to the weight, and not the admissibility, of these opinions and that during cross-examination, plaintiffs may thoroughly question Mr. Larson regarding all of the alleged deficiencies in Mr. Larson's opinions.

Accordingly, the Court finds that Mr. Larson's opinions concerning the flow direction and velocity of groundwater from the Site should not be excluded.

C. Opinions concerning the current or future groundwater contamination at concentration levels less than 15 ppb

The McCormick plaintiffs contend that any opinion or criticism of Dr. Laton's opinions concerning the location of perchlorate in groundwater at contaminates less than 15 ppb should be excluded because Mr. Larson's report includes no opinion or analysis of the location of the perchlorate contamination below 15 ppb. Because Mr. Larson does not attempt to determine the spread of contamination below 15 ppb, the McCormick plaintiffs contend Mr. Larson has no basis for contending that Dr. Laton's determinations are flawed. Halliburton asserts that Mr. Larson is qualified to testify about perchlorate concentrations below 15 ppb because he relies upon actual groundwater sampling results to support his opinions.

Having carefully reviewed the parties' submissions, and particularly Mr. Larson's expert report and deposition testimony, the Court finds that there is a sufficient basis for Mr. Larson's opinions concerning the current or future groundwater contamination at concentration levels less than 15 ppb. Further, the Court finds that the majority of the objections the McCormick plaintiffs



have to Mr. Larson's opinions go to the weight, and not the admissibility, of these opinions and that during cross-examination, plaintiffs may thoroughly question Mr. Larson regarding all of the alleged deficiencies in Mr. Larson's opinions. Accordingly, the Court finds that Mr. Larson's opinions concerning the current or future groundwater contamination at concentration levels less than 15 ppb should not be excluded.

D. Background levels of perchlorate<sup>3</sup>

Plaintiffs assert that Mr. Larson's opinion concerning background concentrations of perchlorate is based on a method that is not generally accepted in the scientific community. Plaintiffs further assert that Mr. Larson's method is new, has not been extensively relied upon in the scientific community, and has not been published in a peer reviewed scientific journal. Plaintiffs, therefore, contend that the method Mr. Larson employed lacks the assurance of reliability required for an expert opinion.

To arrive at his opinion, Mr. Larson used a method set forth in a paper dated August 2014 that outlines the most current approaches to defining site-specific background and computing appropriate background threshold values. The 2014 article was reviewed by the United States Environmental Protection Agency ("EPA"), and the EPA approved the work for publication. Two of the three authors of the paper are EPA scientists, and the remaining author drafted both the user

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<sup>3</sup>In their Daubert motion, the Jones plaintiffs assert that since Mr. Larson did not include any opinions or analysis regarding any particular level for a background concentration of perchlorate in his report, any opinions regarding the background concentration of perchlorate should be excluded. Subsequent to the Jones plaintiffs' motion, Mr. Larson submitted an additional report submitting opinions regarding background concentration of perchlorate that he did not include in his initial report. The Court, therefore, finds that this particular argument made by the Jones plaintiffs is now moot.

guide and the technical guide for the EPA's ProUCL statistical software package, the same software that Dr. Laton used to derive his background estimate.

Having reviewed the parties' submissions, the Court finds that the method Mr. Larson used to determine his background threshold value of perchlorate is a sufficiently reliable method. Further, during cross-examination, plaintiffs may thoroughly question Mr. Larson regarding all of the alleged deficiencies in Mr. Larson's opinions, and specifically in the method Mr. Larson used to determine his background threshold value of perchlorate. Accordingly, the Court finds that Mr. Larson's opinions regarding background levels of perchlorate should not be excluded.

E. Opinion as to the reliability of the Shipman sample

In 1988, Halliburton analyzed a sample of well water taken from a residential location south of the Site; that sample is known as the "Shipman sample." The sample was analyzed by Halliburton's in-house laboratory, and Halliburton's lab reported perchlorate in the sample at the level of 400 ppb. In his report, Mr. Larson opines that the analysis of the Shipman sample is unreliable. The McCormick plaintiffs assert that Mr. Larson is not qualified to offer an opinion as to the reliability of the chemical analysis of the Shipman sample. Specifically, the McCormick plaintiffs assert that Mr. Larson is not an expert in the field of analytical chemistry and, in particular, the perchlorate analysis used to determine the concentration of perchlorate in the Shipman well.

Halliburton contends that Mr. Larson's opinion is based on objective, uncontroverted evidence concerning the detection limit for the perchlorate analysis used by Halliburton's lab. Halliburton further asserts that this opinion does not require a specialized degree in analytical chemistry, nor does it demand that Mr. Larson have personally performed the analysis method. Further, Halliburton contends that an expert may base his opinion on information obtained from

other experts and upon treatises and other publications if such resources are used by experts in the particular field in forming their opinions, and in this case, Mr. Larson relied upon and cited to treatises discussing the method detection limit applicable to the perchlorate analysis used in testing the Shipman sample. Finally, Halliburton asserts that Mr. Larson's opinions on the unreliability of the Shipman sample test result are also supported by his evaluation of other test results in the same well and the surrounding area. Halliburton contends that as a certified hydrologist, Mr. Larson has extensive knowledge of water quality sampling and testing and its use in assessing environmental monitoring data and contaminant transport modeling.

Having carefully reviewed the parties' submissions, and particularly Mr. Larson's expert report and deposition testimony, the Court finds that Mr. Larson is qualified to opine as to the reliability of the analysis of the Shipman sample. Specifically, the Court finds that as a certified hydrologist, Mr. Larson has extensive knowledge of water quality sampling and testing and that it was appropriate for Mr. Larson to rely upon treatises discussing the method detection limit applicable to the perchlorate analysis used in testing the Shipman sample in reaching his opinion.

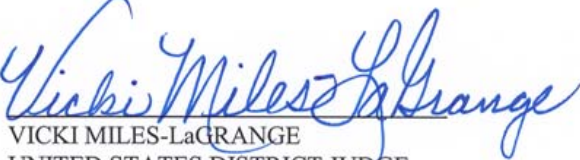
Accordingly, the Court finds that Mr. Larson's opinion as to the reliability of the analysis of the Shipman sample should not be excluded.

### III. Conclusion

The Court, therefore, DENIES the Jones plaintiffs' Daubert Motion to Exclude or Limit Testimony from Defendant's Hydrologist, Steven Larson [docket no. 122 in case no. CIV-11-1322-M], the Jones plaintiffs' Daubert Motion to Exclude or Limit the Additional Testimony of Defendant's Hydrologist, Steven Larson [docket no. 141 in case no. CIV-11-1322-M], and the McCormick plaintiffs' Motion in Limine to Proclude Expert Testimony of Defendant's Witness,

Stephen Larson [docket no. 235 in case no. CIV-11-1272-M, docket no. 102 in case no. CIV-11-1323-M, and docket no. 191 in case no. CIV-11-1343-M].

**IT IS SO ORDERED this 16th day of May, 2016.**



VICKI MILES-LaGRANGE  
UNITED STATES DISTRICT JUDGE